

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (withdrawn): A magnetic media hard disk, comprising:
2 a substrate;
3 a magnetic layer;
4 at least one underlayer being disposed between said substrate and said magnetic layer;
5 an overcoat layer being disposed above said magnetic layer, said overcoat layer being
6 comprised of diamond-like carbon (DLC), and wherein carbon atoms of said DLC layer are
7 generally implanted into said magnetic layer to a depth of less than approximately 10 Å, and
8 wherein the density of said overcoat layer is between approximately 2.0 g/cm³ and
9 approximately 2.9 g/cm³.

1 2. (withdrawn): A magnetic disk as described in claim 1 wherein the thickness of said
2 overcoat layer is from approximately 25 Å to approximately 100 Å.

1 3. (withdrawn): A magnetic disk as described in claim 1 wherein the thickness of said
2 overcoat layer is from approximately 25 Å to approximately 60 Å.

1 4. (withdrawn): A magnetic disk as described in claim 1 wherein the thickness of said
2 overcoat layer is approximately 35 Å.

1 5. (withdrawn): A magnetic disk as described in claim 1 wherein said overcoat layer
2 includes nitrogen.

1 6. (withdrawn): A magnetic disk as described in claim 5 wherein said overcoat layer
2 includes nitrogen in the range of approximately 2 at. % to approximately 20 at. %.

1 7. (withdrawn): A hard disk drive, comprising:
2 at least one magnetic media hard disk being adapted for rotary motion upon a disk drive
3 motor spindle;
4 at least one slider device having a slider body portion being adapted to fly over said
5 magnetic media hard disk;
6 a magnetic head being formed on said slider body for writing data to said magnetic media
7 hard disk and reading data from said magnetic media hard disk;
8 said magnetic media hard disk, including:
9 a substrate;
10 a magnetic layer;
11 at least one underlayer being disposed between said substrate and said magnetic layer;
12 an overcoat layer being disposed above said magnetic layer, said overcoat layer being
13 comprised of diamond-like carbon (DLC), and wherein carbon atoms of said DLC layer are
14 generally implanted into said magnetic layer to a depth of less than approximately 10 Å, and
15 wherein the density of said overcoat layer is between approximately 2.0 g/cm³ and
16 approximately 2.9 g/cm³.

1 8. (withdrawn): A hard disk drive as described in claim 7 wherein the thickness of said
2 overcoat layer is from approximately 25 Å to approximately 100 Å.

1 9. (withdrawn): A hard disk drive as described in claim 7 wherein the thickness of said
2 overcoat layer is from approximately 25 Å to approximately 60 Å.

1 10. (withdrawn): A hard disk drive as described in claim 7 wherein the thickness of said
2 overcoat layer is approximately 35 Å.

1 11. (withdrawn): A hard disk drive as described in claim 7 wherein said overcoat layer
2 includes nitrogen.

1 12. (withdrawn): A hard disk drive as described in claim 11 wherein said overcoat layer
2 includes nitrogen in the range of approximately 2 at. % to approximately 20 at. %.

1 13. (currently amended): A process for fabricating a magnetic media hard disk comprising:
2 fabricating a magnetic media layer upon a surface material of a substrate;
3 fabricating a diamond-like carbon (DLC) layer upon said magnetic layer by:
4 fabricating an initial thickness portion of said DLC layer upon said magnetic layer
5 utilizing a relatively low ion carbon beam energy of less than approximately 20 eV;
6 fabricating a subsequent thickness portion of said DLC layer upon said initial
7 thickness portion of said DLC layer utilizing at least one relatively high subsequent carbon ion
8 beam energy of greater than approximately 50 eV.

1 14. (original): A process for fabricating a magnetic media hard disk as described in claim 13
2 wherein said relatively low carbon ion beam energy is approximately 10 eV to approximately 20
3 eV.

1 15. (currently amended): A process for fabricating a magnetic media hard disk as described
2 in claim 14 wherein said relatively high subsequent ion beam energy is approximately 100 eV.

1 16. (currently amended): A process for fabricating a magnetic media hard disk as described
2 in claim 13, including fabricating an intermediate thickness portion of said DLC layer between
3 said initial thickness portion and said subsequent thickness portion, wherein said intermediate
4 thickness portion is fabricated utilizing a relatively mid-range carbon ion beam energy between
5 said relatively low carbon ion beam energy and said relatively high subsequent carbon ion beam
6 energy.

1 17. (previously amended): A process for fabricating a magnetic media hard disk as described
2 in claim 16 wherein said mid-range carbon ion beam energy is approximately 50 eV.

1 18. (previously amended): A process for fabricating a magnetic media hard disk as described
2 in claim 17 wherein said DLC layer has a thickness of approximately 10 Å following the
3 deposition of said initial thickness portion, and said DLC layer has a thickness of approximately
4 19 Å following the deposition of said intermediate thickness portion, and said DLC layer has a
5 final thickness of approximately 25 Å following the deposition of said subsequent thickness
6 portion.

1 19. (original): A method for fabricating a magnetic media hard disk as described in claim 18
2 wherein said DLC layer is formed with a density of approximately 2.0 g/cm³ to approximately
3 2.9 g/cm³.

1 20. (previously amended): A method for fabricating a magnetic media hard disk as described
2 in claim 13 wherein nitrogen ion species are deposited along with said carbon ion species within
3 said subsequent thickness portion.

1 21. (original): A process for fabricating a magnetic media hard disk as described in claim 20
2 wherein said nitrogen species are deposited in a range of approximately 2 at. % to approximately
3 20 at. %.

1 22. (previously amended): A method for fabricating a magnetic media hard disk comprising:
2 fabricating a magnetic material layer upon a material surface of a substrate;
3 fabricating a diamond-like carbon (DLC) layer upon said magnetic layer, wherein said
4 DLC layer is fabricated by:

5 depositing carbon ion species upon said magnetic layer utilizing a relatively low
6 carbon ion beam energy level of from approximately 10 eV to approximately 20 eV, to deposit
7 an initial thickness portion of said DLC layer;

8 subsequently increasing the energy level of said carbon ion beam as the thickness
9 of said DLC layer increases due to the deposition of said carbon ion species within said DLC
10 layer, such that a portion of the carbon ion beam species of said increased energy level carbon
11 ion beam become implanted within said initial thickness portion of said DLC layer, and such that

12 another portion of said carbon ion beam species of said increased energy level carbon ion beam
13 become deposited on top of said initial thickness portion of said DLC layer.

1 23. (original): A method for fabricating a magnetic media disk as described in claim 22
2 wherein said carbon ion beam energy level is varied smoothly with time.

1 24. (original): A method for fabricating a magnetic media hard disk as described in claim 22
2 wherein said carbon ion beam energy level varies as a step function with time.

1 25. (previously amended) A method for fabricating a magnetic media hard disk as described
2 in claim 23 wherein nitrogen ion species are implanted along with said carbon ion species within
3 said DLC layer thickness.

1 26. (original): A method for fabricating a magnetic media hard disk as described in claim 25
2 wherein said nitrogen ion species are included within said DLC layer in a range of approximately
3 2 at. % to approximately 20 at. %.

1 27. (previously added): A process for fabricating a magnetic media hard disk, comprising:
2 fabricating a magnetic media layer upon a surface material of a substrate;
3 fabricating a diamond-like carbon (DLC) layer including carbon ion species upon said
4 magnetic layer, by:
5 fabricating an initial thickness portion of said DLC layer upon said magnetic layer
6 utilizing a relatively low ion carbon beam energy of from approximately 10 eV to approximately
7 20 eV;

8 fabricating a subsequent thickness portion of said DLC layer upon said initial thickness
9 portion of said DLC layer utilizing a higher carbon ion beam energy, wherein a portion of the
10 carbon ion species of said subsequent thickness portion penetrates into said initial thickness
11 portion and not into said magnetic media layer, and another portion of said carbon ion species of
12 said subsequent layer are disposed on top of said initial thickness portion.

1 28. (previously added): A process for fabricating a magnetic media hard disk as described in
2 claim 27 including:

3 fabricating a further thickness portion of said DLC layer upon said subsequent thickness
4 portion of said DLC layer utilizing a higher carbon ion beam energy, wherein a portion of the
5 carbon ion species of said further thickness portion penetrate into said subsequent thickness
6 portion and into said initial thickness portion, and not into said magnetic media layer, and
7 wherein another portion of said carbon ion species of said further thickness layer are disposed on
8 top of said subsequent thickness portion.

1 29. (previously added): A process for fabricating a magnetic media heard disk as described
2 in claim 27 wherein said carbon ion beam energy of said subsequent thickness portion is
3 approximately 50 eV and wherein said carbon ion beam energy of said further thickness portion
4 is approximately 100 eV.